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FACTOR ANALYSIS OF SELF-DESCRIPTION DATA IN A BASIC COMBAT TRAI--ETC(U)
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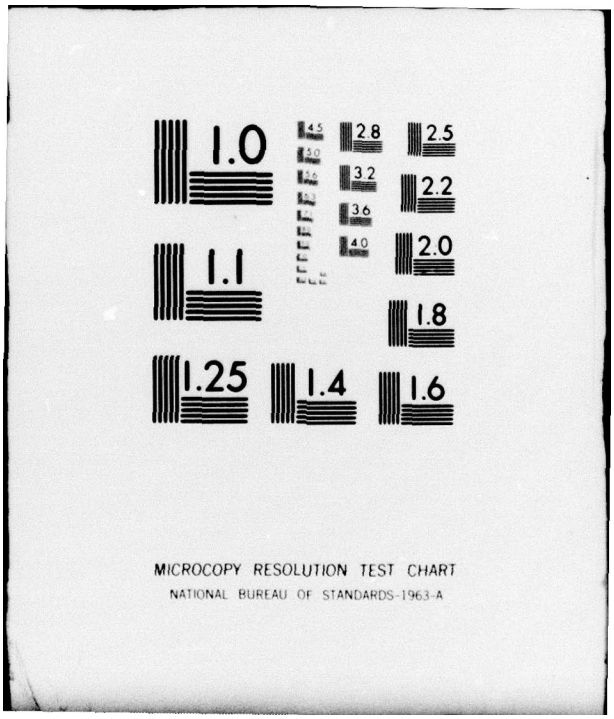
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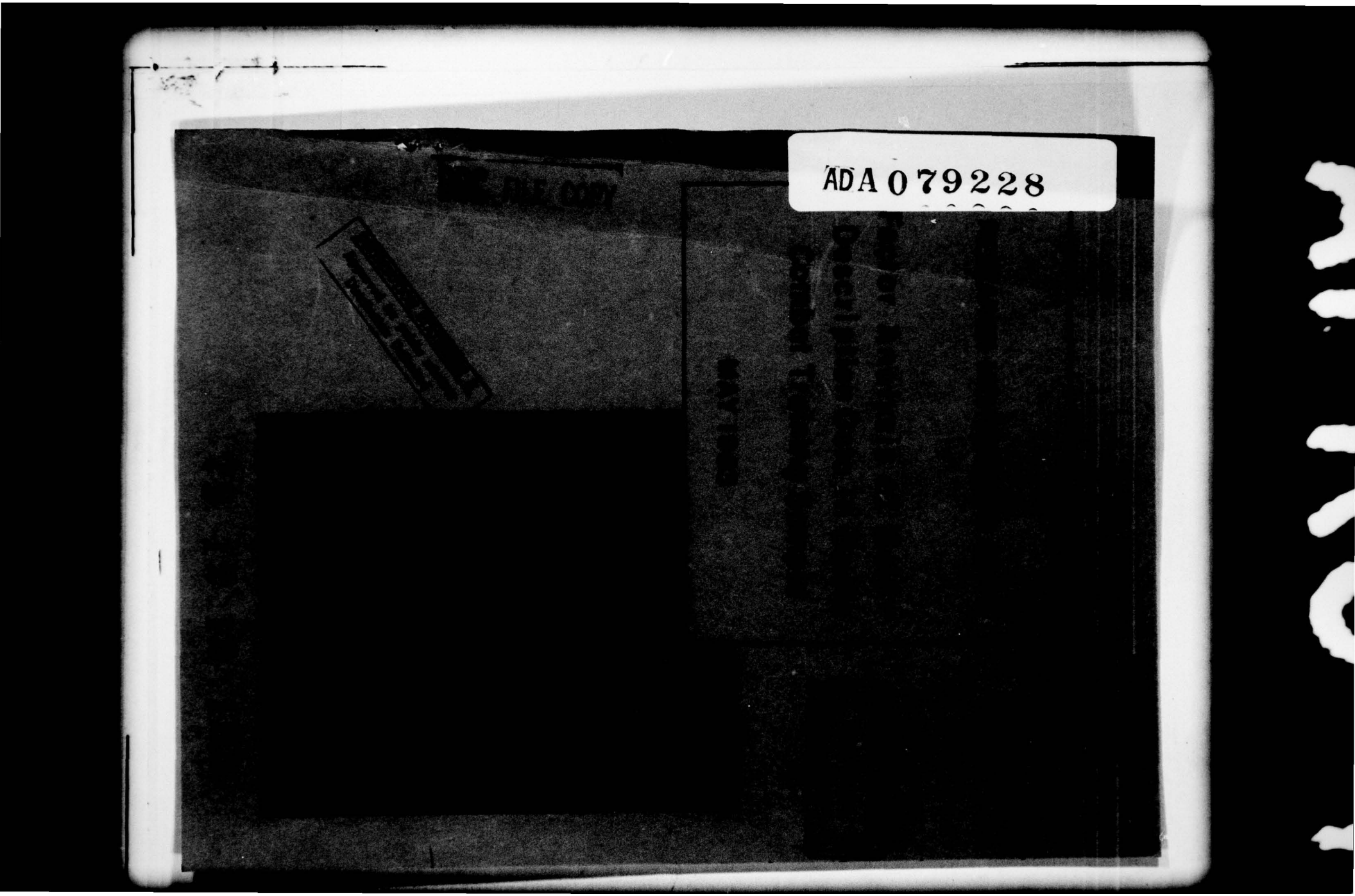

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(6) FACTOR ANALYSIS OF SELF-DESCRIPTION DATA IN A BASIC COMBAT TRAINING SAMPLE.

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Submitted by

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FACTOR ANALYSIS OF SELF-DESCRIPTION DATA IN A BASIC COMBAT TRAINING SAMPLE

PURPOSE

A basic objective of the New Classification Techniques Task is to explore new test content through which the effectiveness of classification and assignment in the Army can be heightened. As a result of research conducted since 1949, including Korean combat studies, two new measures were developed and introduced into the Army Classification Battery on 1 October 1958. The new tests were incorporated in two new aptitude areas for classification to the combat arms, the Classification Inventory as a component of the Infantry Combat Aptitude Area (IN) and the General Information Test as a component of the Artillery, Armor, and Engineer Combat Aptitude Area (AE). The success obtained with these instruments increased the hope that further improvement in the predictability of combat performance could be achieved by measuring additional aspects of personality.

The Self-Description Questionnaire, SDQ (PT 3687 and PT 3688) was constructed on the basis of specific rationales developed to reflect personality characteristics judged to be related to combat performance (Katz, 1961). Part 1 of the SDQ has been utilized in Special Forces and a correlation coefficient of .45 has been obtained against a Jump Tower criterion, that is, whether a man jumped or refused to jump from the tower.

The 18 a priori keys of the SDQ covering the specific rationales were subjected to factor analysis in order to ascertain the underlying dimensions of the instrument. The results of the factor analysis are described in the present Research Memorandum. The analysis is a required step in obtaining a set of factor keys which can be utilized in other studies in which the SDQ is administered.

PROCEDURE

Pearson product-moment correlation coefficients were computed among the 18 keys of the Self-Description Questionnaire, SDQ. These correlation coefficients were factor analyzed using a Thurstone full centroid method. Graphic rotation of the centroid loadings to an orthogonal solution on the basis of simple structure was performed. During the process of rotation, it became apparent that the introduction of a null vector for purposes of extracting a general factor would be a useful step in clarifying the underlying factor structure, and this step was taken.

SAMPLE

The sample consisted of two companies of enlisted men (N = 333) in the fifth week of basic combat training at Fort Leonard Wood in November 1958. These EM completed the Self-Description Questionnaire, PT 3687 and 3688.

VARIABLES

Content keys of the Self-Description Questionnaire		No. of items
1.	Effective interpersonal relations	30
2.	Freedom from self-centered orientation	9
3.	Freedom from feelings of irritability	10
4.	Interest in accuracy of oral communication	10
5.	Conscientiousness	32
6.	Effective work habits including helping to attain group goals	18
7.	Resourcefulness	10
8.	Freedom from neglectfulness	21
9.	Economy in the acquisition and utilization of objects	10
10.	General self-confidence	26
11.	Confidence in the ability to handle combat and emergencies and liking for related activities	53
12.	Control of fears	11
13.	Physical stamina	14
14.	Love of outdoors	11
15.	Freedom from fastidiousness in requirements	11
16.	Job interest in the Army	11
17.	Attending to visual and auditory phenomena	10
18.	Attending to changes in environment	13

RESULTS

The intercorrelation matrix of the 18 keys of the SDQ is presented in Table 1. The residual matrix is shown in Table 2.

The results of applying a Thurstone full centroid method of factor analysis to the intercorrelation matrix of the 18 keys of the SDQ are presented in Table 3. Six centroid factors were obtained.

After the null vector was introduced, graphic rotation was conducted until a reasonable fit to simple structure was attained and psychological meaningfulness achieved. A general factor and six group factors were obtained. The rotated factor loadings are presented in Table 4.

Table 1

INTERCORRELATION OF 18 KEYS OF SELF-DESCRIPTION QUESTIONNAIRE
(N = 333 EM)

KEY	Mean	S.D.	Intercorrelations																
1	21.98	3.54	1																
2	6.85	1.64	42[a]	2															
3	7.45	2.19	43	50	3														
4	7.36	1.92	53	29	22	4													
5	27.28	4.18	64	53	55	45	5												
6	14.50	2.65	64	57	61	42	70	6											
7	6.60	2.27	55	30	40	41	61	52	7										
8	16.34	3.03	45	41	45	32	58	51	34	8									
9	7.89	1.67	36	27	33	19	46	43	36	36	9								
10	19.72	3.72	56	44	33	46	53	49	37	41	25	10							
11	30.88	9.29	48	30	46	39	50	47	50	31	21	27	11						
12	8.28	2.35	46	42	54	33	52	48	42	39	20	34	67	12					
13	9.92	2.88	39	29	49	25	46	43	45	28	26	30	70	59	13				
14	6.17	2.43	31	26	41	09	34	32	34	21	23	17	53	52	55	14			
15	7.78	1.82	21	32	41	07	27	34	22	14	16	22	33	38	38	37	15		
16	6.39	2.03	37	14	34	18	32	35	31	21	23	14	49	31	40	32	19	16	
17	5.19	2.46	41	17	34	35	45	34	51	28	28	19	61	53	50	44	26	41	17
18	9.65	3.02	58	25	35	47	57	49	59	39	33	37	61	52	51	34	24	38	39

[a]Decimal points omitted from correlation coefficients.

Table 2

RESIDUAL MATRIX[a] IN FACTOR ANALYSIS OF 18 KEYS
OF SELF-DESCRIPTION QUESTIONNAIRE
(N = 333 EM)

KEYS	Intercorrelations																
1	1																
2	00[b]	2															
3	01	00	3														
4	02	00	01	4													
5	01	-01	00	01	5												
6	02	01	01	02	-02	6											
7	00	-02	01	04	07	02	7										
8	00	-04	01	-03	00	-05	-01	8									
9	-02	-03	-02	00	-02	-03	01	02	9								
10	01	-01	01	01	00	-03	00	01	-02	10							
11	-04	-02	-05	00	05	00	-02	00	-01	-04	11						
12	01	-04	00	-03	02	00	-03	01	-01	-02	-01	12					
13	-06	-06	-04	-01	03	-02	-03	00	01	02	01	-03	13				
14	01	-04	-04	-03	02	-01	-03	04	03	-02	01	01	-01	14			
15	-02	01	02	-01	-02	04	-05	-04	-02	02	-02	-02	-04	-05	15		
16	02	00	01	-02	03	03	-04	03	02	00	00	-02	-03	01	00	16	
17	-01	-02	00	03	02	00	-03	02	03	00	-01	-01	-04	02	-01	03	17
18	02	-01	01	01	05	04	01	05	04	03	-01	-01	00	-02	01	00	01

[a]Residuals were computed from rotated factor matrix.

[b]Decimal points omitted.

Table 3

CENTROID FACTOR MATRIX IN ANALYSIS OF 18 KEYS OF SELF-DESCRIPTION QUESTIONNAIRE
(N = 333 EM)

KEYS	FACTORS I	II	III	IV	V	VI	h^2
1	74[a]	24	-24	10	-14	-06	70
2	56	30	29	17	11	04	53
3	68	04	37	-08	03	-13	63
4	52	21	-38	22	14	-05	53
5	80	29	-02	-10	05	08	74
6	77	31	11	-04	-05	-10	72
7	68	04	-22	-11	-09	12	55
8	58	29	06	-12	21	-05	49
9	47	19	04	-29	-15	06	37
10	56	35	-06	29	-05	05	53
11	75	-40	-10	10	06	-19	78
12	73	-24	13	18	26	02	71
13	70	-36	10	08	-09	-05	65
14	55	-36	24	04	-13	10	52
15	43	-16	30	10	-10	14	34
16	49	-21	-08	-14	-12	-27	40
17	65	-37	-27	-19	13	18	72
18	73	-14	-36	-12	08	11	72

[a]Decimal points omitted.

Table 4

ROTATED FACTOR MATRIX IN ANALYSIS OF 18 KEYS OF SELF-DESCRIPTION QUESTIONNAIRE
(N = 333 EM)

KEYS	G	I	II	III	IV	V	VI	h^2
1	70[a]	13	30	-06	19	-17	15	69
2	56	-18	16	08	33	16	-17	54
3	65	09	-14	17	33	19	-15	65
4	49	06	42	-25	01	02	15	51
5	70	-06	12	-07	46	02	16	75
6	72	04	09	-05	45	-03	-04	74
7	63	08	05	05	11	-06	34	54
8	50	-04	12	-18	42	14	02	49
9	40	-01	-07	01	40	-16	15	37
10	52	-10	48	00	22	-07	-01	56
11	73	39	03	12	-13	24	15	80
12	70	07	08	16	-02	44	07	73
13	68	24	-05	32	-04	17	10	67
14	53	08	-12	44	-04	15	08	53
15	42	-06	-06	40	06	12	-01	36
16	45	40	-12	05	00	-04	10	39
17	60	12	-14	01	-12	19	53	73
18	67	12	06	-10	-07	06	47	71

[a]Decimal points omitted.

INTERPRETATION OF FACTORS

Tentative identification of factors was based on a consideration of keys loading .30 or greater on the factor. By this criterion, the factors were identified as follows:

The General Factor was interpretable as a consistent tendency for examinees to report themselves and/or to regard themselves in a favorable light. Highest loadings in this factor were found in the following keys: Confidence in the ability to handle combat and emergencies and liking for related activities, Effective work habits including helping to reach group goals, Effective interpersonal relations, Conscientiousness, and Control of fears.

Factor I was labeled Combat Orientation. It refers to an interest in contributing to the combat effort and confidence in one's ability to do so. The keys with the highest loadings in this factor were Job interest in the Army, and Confidence in the ability to handle combat and emergencies and liking for related activities.

Factor II might be called Ego Strength. This factor refers to such characteristics as self-confidence, self-assertion, and having the courage of one's convictions. The keys with the highest loadings in this factor were General self-confidence, Interest in accuracy of oral communication, and Effective interpersonal relations.

Factor III might be called Outdoor Orientation. It refers to a liking for the outdoors and the ability to cope with the requirements of outdoor living. The keys with the highest loadings in this factor were Physical stamina, Love of outdoors, and Freedom from fastidiousness in requirements.

Factor IV was termed Identification with Group Goals. It refers to the ability to place one's efforts in the support of the group above one's personal needs for comfort, recognition, or aggrandizement. The keys with the highest loadings in this factor were those stressing a real concern for the group not only to the extent of willingness to cooperate in achieving the group's objectives, but also in willingness to get along with minimal essentials in material goods and in avoiding behavior which might endanger the group. These keys are Conscientiousness, Effective work habits including helping to attain group goals, Freedom from neglectfulness, and Economy in the acquisition and utilization of objects.

Factor V was labeled Ability to Control Fears. It refers to the ability to maintain one's equilibrium in fear-evoking situations. The key with the highest loading in this factor was Control of fears.

Factor VI was termed Alertness. It refers to keenness of perception. The keys with the highest loadings in this factor are Alertness to visual and auditory phenomena, Attending to changes in environment, and Resourcefulness.

REFERENCE

Katz, Aaron. Construction of an experimental self-description questionnaire for combat. U. S. Army Personnel Research Office, Research Memorandum 61-11. August 1961.